

### **Remarks**

The Examiner has rejected claims 1 through 5 as being obvious over the Witt '908 Patent in view of the Gregory '265 Patent. The rest of the claims, except possibly claim 12, are rejected as being obvious in view of the additional teachings of the Dutt '435 Patent.

Applicants have amended main Claim 1 by adding the limitations of Claim 2 thereby providing a claim which is directed to the three cooperative sealing features discussed below.

Applicants have also added new claims 14 and 15 which are directed to the variable thickness of the flange 20; a feature discussed at page 8, line 24 of the published PCT application.

### **Applicants' Invention**

In order to best understand the significance of Applicants' invention and the extent to which it differs from any teachings of the prior art, it helps to visualize the three significant sealing features which in combination create the enhanced sealing provided by the invention. These three sealing features are as follows:

1. First, there is a sealing engagement between the upper rim of the neck of the receptacle and the web 16.
2. Second is the sealing engagement between the shoulder 14 of the receptacle and the end surface of the flange 20 (best seen in FIGs. 3 and 6).
3. Third is the sealing engagement just below the shoulder 14 between the outer surface of the receptacle and the surface of the flange 20.

These three sealing engagements provide an effective seal which is created by the simple operation of forcing the lid described onto the receptacle.

Please note how these three sealing arrangements operate in cooperation with one another. The seal at the web places the skirt 18 in tension thereby assuring the seal between the flange 20 and the shoulder 14. The hinged flange 20 snaps into place under the shoulder 14 and is forced against the outer wall of the neck of the receptacle thereby creating the third sealing zone.

Please note that FIG. 6 shows the situation where the pressure in the container has disrupted the first seal. Thus FIG. 6 is not the showing of the three way sealing relationship.

## The References

### Witt '908

Witt discloses a one-piece, push-on tamper-proof closure for reusable bottles including a cap portion 20 with a lower peripheral margin 22, a cover 24 and an inwardly directed surface 26 between them. The closure also includes an annular latch ring portion 30 with a lower peripheral margin 32, an upper peripheral margin 34 and an inwardly directed surface 36 between them. A series of peripherally spaced teeth depend inwardly from the lower margin 32. A series of blind portals 40 is formed in the surface behind the teeth 38, into which the teeth may be deformed. The cap portion 20 and the latch ring portion 30 are connected together by a number of frangible tabs 42. The latch ring portion 30 has a U-shaped opening 44 in it, which intersects both the upper and lower margins 32, 34 and accommodates a depending U-shaped projection 48 on the cap portion 20. A pull tab 52 is connected to the outer surface of the cap portion 20 by an integral hinge 54. The cover 24 is generally flat and, in use, extends across the mouth of the container. Depending from its underside is a tubular stopper 66.

The closure is pushed onto a bottle and the teeth 38 are deflected inwardly and their upper surface then locks beneath a downwardly directed shoulder on the neck of the bottle. At the same time, the stopper 60 is caused to enter and seal the neck of the bottle. When it is desired to open the bottle the pull tab 52 is pulled, thereby progressively rupturing the tabs 42. The cap portion 20 may then be removed from the bottle whilst the latch ring 30 is retained around the neck of the bottle by the engagement of the teeth 38 with the downwardly directed shoulder. It is worth commenting at this point that the bottle is sealed only by the stopper 66

within the neck of the bottle. The latch ring 30 always remains on the bottle and acts as a tamper indicator.

### **Gregory '265**

Gregory discloses a one-piece plastic closure for a container with a neck defining an opening. The closure has a disc-shaped lid 13 whose outer edge is a depending internally threaded cylindrical skirt 14. The lower edge of the skirt 14 is connected to a series of frangible bridges 16 and to an indicator band 15, that is to say a tamper-evident band. Integral with the inner surface of the indicator band is a stop ring 20 in a form of an annular flange which extends inwardly and upwardly and is connected to the indicator band 15 by an integral hinge. The neck of the container carries a downwardly directed shoulder 27, beneath which the free end of the annular flange 20 engages. When the closure is rotated, the upper portion moves upwardly by virtue of the action of the screw threads but the indicator band 15 is retained by engagement of the flange 20 with a downwardly directed shoulder 27 on the neck of the bottle and this results in breaking of the frangible bridges 16. The cap is then removed but the indicator band remains in position around the neck of the bottle.

The stop ring flange 20 does not serve a sealing function. It holds the indicator band 15 so that the bridges 16 will break when the closure is removed.

## **Discussion**

In brief, both Gregory '265 and Witt '908 are directed to tamper resistant closures. More particularly, they are directed to closures that will cause a rupture of certain tabs or bridges to indicate that the container has been opened. These tamper resistant arrangements are not intended to, and do not, provide a sealing effect. Accordingly, there is nothing about the structure or the teachings of these two patents which would lead one to the three-part sealing arrangement that Applicants have taught and claimed.

For example, Witt employs a stopper as the sealing closure; see col. 2, lines 52-55 and Gregory uses screw threads as the sealing device.

The Examiner suggests that it would be obvious to combine these two documents to produce the present invention. The drawings in Gregory have a superficial similarity to Applicants' drawings in that they both have an inwardly directed annular flange, coincidentally number 20 in both Applicants' application and in Gregory, but the purpose and function of this flange is different in the two cases.

Of particular importance is the fact that in Gregory the free end of the flange 20 does not engage the underside of the shoulder and thus does not form a seal with it. There would be no point in the end of the flange 20 in Gregory forming a seal with the shoulder because the flange 20 is connected to the indicator ring 15, which is connected to the cap by a series of spaced frangible bridges 16 and this means that the seal of the cap in Gregory is created solely by the engagement of the screw threads. The Examiner correctly comments that Gregory has a continuous annular flange 20. But the Gregory flange 20 is not capable of having sealing contact with the bottom surface of a container neck shoulder. The Gregory flange 20 does not have

sealing contact with the shoulder and there would be no point in its doing so because of the presence of the gaps between the frangible bridges 16. It would be impracticable in the Gregory design for the end of the flange 20 to be in firm contact with the shoulder because it would then be difficult or impossible to remove the lid.

The Examiner presumably considers Witt to be the more relevant of the two documents. Witt '908 does not disclose that the inner surface of the skirt carries "a continuous annular flange, which is in sealing engagement with the underside of a continuous downwardly directed annular shoulder on the outer surface of the neck". Further, Witt does not disclose any of the following limitations set forth in Applicants' Claim 1.

"the annular flange on the lid is connected thereto by a resilient hinge connection".

"the annular flange is elongate in axial sectional view".

"the end surface of the free end of the flange is in sealing engagement with the underside of the shoulder".

"the resilience of the resilient hinge connection urges the side surface of the free end of the annular flange into sealing engagement with the external surface of the neck".

"the closure plate is connected to the annular skirt by an annular web, the underside of which extends over the upper surface of the neck and is retained in sealing engagement with it by tension in the skirt 18".

It is true that Gregory does disclose a continuous annular flange but this flange is not “in sealing engagement with the underside of a continuous downwardly directed annular shoulder on the outer surface of the neck”. Gregory also does not disclose that “the end surface of the free end of the flange is in sealing engagement with the underside of the shoulder and nor does it disclose that “the resilience of the resilient hinge connection urges the side surface of the free end of the annular flange into sealing engagement with the external surface of the neck”.

Claims 1 of the application refers to two separate seals, one between the end surface of the free end of the flange and the underside of the shoulder and the other being between the side surface of the free end of the annular flange and the external surface of the neck. Accordingly, even if one combines the disclosure of both Witt and Gregory, the resulting container does not have these two features of Claim 1.

Furthermore, the teeth 38 in Witt and the flange 20 in Gregory are both connected to a separate tamper-evident ring which is connected to the remainder of the cap by spaced frangible bridges. There would therefore be no point in modifying Gregory so that the flange 20 has the two seals referred to in Claim 1 of our application because there would be no benefit whatever in sealing the tamper evident ring to the container because it is the cap which needs to be sealed and not the tamper evident ring.

The Examiner suggests that the flange 20 of Gregory could have sealing contact with the under surface of a shoulder. But the fact is that it does not. Indeed, there would be no point in its doing so. As mentioned above, the fact is that even if one combines both Witt and Gregory, the resulting structure still fails to have two of the features of Claim 1 of the application.

Claim 1 as originally submitted refers to two separate seals, that is to say between the free end of the flange 20 with the underside of the shoulder and between the side surface of the

free end of the flange with the external of the neck. Claim 1 has been amended to refer to a third seal, namely that between the underside of the annular skirt 16 and the top edge of the ring of the bottle. Claim 1 has been amended to recite: that the closure plate is connected to the annular skirt by an annular web, the underside of which extends over the upper surface of the neck and is retained in sealing engagement with it.

Please also note that in Applicants' design, the annular skirt 18 is stressed in tension. This is disclosed at the beginning of the paragraph beginning in line 4 on page 4 of the specification. It is this tension which draws the web 16 downwardly into sealing contact with the rim of the bottle and draws the free end of the flange 20 upwardly into sealing contact with the underside of the shoulder. The claimed container will then have three separate seals, none of which is disclosed in either of the cited documents.

### **Summary**

To repeat, both Gregory '265 and Witt '908 are directed to tamper resistant closures. The tamper resistant features are not intended to, and do not, provide a sealing effect. Accordingly, there is nothing about the structure or the teachings of these two patents which would lead one to the three-part sealing arrangement that Applicants have taught and claimed.

The technology and materials needed for applicants' invention have been available for decades. Yet no one has put together this combination of structural features. By itself that is significant evidence of non-obviousness.

Yes there is value in the enhanced sealing provided by applicants' enhanced sealing arrangement. Applicant suggests that such value is evidence that it was not obvious to devise their invention because if it were obvious it would have been done.

Applicant suggests that the best inventions are a model of simplicity. It is of the highest order of ingenuity to do more with less. Applicant achieves enhanced sealing with a minimum of parts and elements. It took invention to achieve such.

Simple inventions are often the best, the most useful and the most economic. They tend to appear straight forward after they are disclosed because of their simplicity. Yet if they are so evident after disclosure, does that not suggest how non-obvious they were before disclosure

In brief, how often have we said: "Why didn't I think of that?", after someone points out what should have been but what was not evident?

Accordingly, it is submitted that Applicants' two piece provision of a triad of successive sealing zones warrants a patent and such is respectfully requested.

The Commissioner for Patents is hereby authorized to charge any additional fee to Account No. 03-3415.

Respectfully submitted,

A handwritten signature in cursive script, reading "Lloyd McAulay", is written over a horizontal line.

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